

RECENT EXPERIMENTS USING LOW ENERGY ^7Be RADIOACTIVE ION BEAM AT NSC, NEW DELHI

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Low energy ^7Be radioactive ion beam (RIB) has been optimised at NSC in the energy range of 17-22 MeV using in flight technique. Availability of this beam has generated considerable interest in the local user community and different kind of experiments were undertaken. Few of these experiments are:

- (i) Transfer ($^7\text{Be}(d,n)^8\text{B}$) and elastic scattering ($^7\text{Be}(d,d)^7\text{Be}$) angular distribution in to extract as S17(0) factor using ANC method.
- (ii) Elastic scattering angular distribution measurement in the mirror system $^7\text{Be} + ^7\text{Li}$ to study the effect of charge exchange process.
- (iii) Change of decay rate of ^7Be in the presence of high electron density materials like Fullerian C-60.
- (iv) Fusion and elastic scattering around barrier in the $^7\text{Be} + ^{27}\text{Al}$ system to examine the effect of shape and weakly bound nature of ^7Be .
- (v) Study the effect of neutron pickup on fusion in the $^7\text{Be} + ^9\text{Be}$ system around barrier.

To perform these experiments in a multi-user facility like ours needed considerable planning and development. Major efforts were went into developing efficient detector system and optimising experimental techniques.

These developments along with results some of these experiments will be discussed.